## AMENDMENTS TO THE CLAIMS

1-21. (Canceled)

22. (Previously Presented)    A layer 2 switch network system that includes a terminal, comprising:

a plurality of layer 2 switches including an edge switch that is located at an edge of a layer 2 switch network and serves as a wireless access point; and

a temporary-MAC-address notifying unit that notifies the edge switch of a temporary MAC address allocated to the terminal, wherein

the edge switch stores therein swap data which associates a temporary MAC address acquired from the temporary-MAC-address notifying unit with a real MAC address, and, based on the swap data, replaces a real MAC address of a source set in a MAC frame with a temporary MAC address of the source on receipt of the MAC frame, and replaces a temporary MAC address of a destination set in a MAC frame with a real MAC address of the destination to transmit the MAC frame,

the edge switch snoops a neighbor solicitation IP packet, and replaces the real MAC address of the source set in the MAC frame including the neighbor solicitation IP packet and the real MAC address of the source set in the neighbor solicitation IP packet with corresponding temporary MAC addresses, respectively, when the terminal transmits the neighbor solicitation IP packet, and

the edge switch snoops a neighbor advertisement IP packet, and replaces the real MAC address of the source set in the MAC frame including the neighbor advertisement IP packet and a target real MAC address set in the neighbor advertisement IP packet with corresponding temporary MAC addresses, respectively, when receiving the neighbor advertisement IP packet from the terminal.

23. (Previously Presented) The layer 2 switch network system according to claim 22, wherein

the temporary-MAC-address notifying unit is a temporary-MAC-address transaction server that is connected to the layer 2 switch network, and generates a temporary MAC address allocated to the terminal, and

the edge switch authenticates the terminal, and, when the terminal is authenticated, acquires a temporary MAC address corresponding to the terminal from the temporary-MAC-address transaction server.

24. (Previously Presented)    The layer 2 switch network system according to claim 22, wherein

the temporary-MAC-address notifying unit is the terminal,

the terminal stores therein a temporary MAC address acquired in advance, and notifies the edge switch of the temporary MAC address when establishing an association with the edge switch, and

the edge switch acquires the temporary MAC address during an association procedure.

25. (Previously Presented)    The layer 2 switch network system according to claim 22, wherein

when an access point of the terminal is changed from a first edge switch to a second edge switch by any one of movement of the terminal and switching of wireless interfaces used in the terminal, the first edge switch transfers swap data on the terminal stored therein to the second edge switch, and

the second edge switch stores therein the swap data.

26. (Previously Presented)    The layer 2 switch network system according to claim 23, wherein

the layer 2 switch network is a heterogeneous wireless integrated network that accommodates a terminal including a plurality of wireless interfaces having a common IP address, and

the temporary-MAC-address transaction server allocates a common temporary MAC address corresponding to real MAC addresses of the wireless interfaces.

27. (Previously Presented)    The layer 2 switch network system according to claim 24, wherein

the layer 2 switch networks is a heterogeneous wireless integrated network that accommodates a mobile terminal including a plurality of wireless interfaces having a common IP address,

the wireless interfaces are each allocated a different real MAC address corresponding to a common temporary MAC address, and

the terminal notifies the edge switch of the common temporary MAC address.

28. (Previously Presented)    The layer 2 switch network system according to claim 22, wherein, after storing therein the swap data, the edge switch requests the layer 2 switches to update a correspondence table, which is stored in each layer 2 switch, between the temporary MAC address and an output port for a MAC frame addressed to the temporary MAC address.

29. (Previously Presented)    The layer 2 switch network system according to claim 23, wherein

the temporary-MAC-address transaction server is an authentication server,

the authentication server updates the temporary MAC address at predetermined time intervals,

when updating a first temporary MAC address with a second temporary MAC address, the authentication server causes the edge switch to update the swap data, and to request a neighbor discovery server to update a correspondence table, which is stored in the neighbor discovery server, between the first temporary MAC address and an IP address to a correspondence table between the second temporary MAC address and the IP address, and

after updating the swap data, the edge switch requests the layer 2 switches to update a correspondence table, which is stored in the layer 2 switches, between the temporary MAC address and an output port for a MAC frame addressed to the temporary MAC address.

30. (Previously Presented)    The layer 2 switch network system according to claim 23, wherein

the temporary-MAC-address transaction server is the edge switch, and

the edge switch updates the temporary MAC address at predetermined time intervals,

when updating a first temporary MAC address with a second temporary MAC address, the edge switch updates the swap data, and requests a neighbor discovery server to update a correspondence table, which is stored in the neighbor discovery server, between the first temporary MAC address and an IP address to a correspondence table between the second temporary MAC address and the IP address, and

the edge switch requests the layer 2 switches to update a correspondence table, which is stored in the layer 2 switches, between the temporary MAC address and an output port for a MAC frame addressed to the temporary MAC address.

31. (Previously Presented)    The layer 2 switch network system according to claim 30, wherein the edge switch stores therein correspondence between the first temporary MAC address and the second temporary MAC address for a predetermined time period after updating the temporary MAC address, and swaps, when receiving a MAC frame addressed to the first temporary MAC address during the predetermined time period, the first temporary MAC address with the second temporary MAC address before processing the MAC frame.

32. (Canceled)

33. (Previously Presented)    The layer 2 switch network system according to claim 22, wherein

a neighbor discovery server performs a neighbor discovery,

when receiving a neighbor solicitation IP packet, the neighbor discovery server stores and registers therein a correspondence table between the temporary MAC address of the source set in the MAC frame including the neighbor solicitation IP packet and an IP address of the source set in the neighbor solicitation IP packet, and

the neighbor discovery server obtains a temporary MAC address corresponding to a target IP address set in the neighbor solicitation IP packet based on the correspondence table, and transmits a neighbor advertisement IP packet to notify the edge switch of the temporary MAC address as a target MAC address.

34. (Previously Presented)    The layer 2 switch network system according to claim 22, wherein the terminal regularly updates any one of the real MAC address and the temporary MAC address or both allocated to the terminal with respect to each terminal interface synchronously with the edge switch.

35. (Previously Presented)    The layer 2 switch network system according to claim 34, wherein, for a predetermined time period after updating a first MAC address with a second MAC address, the terminal captures a MAC frame addressed to the first MAC address and a MAC frame addressed to the second MAC address as a MAC frame to the terminal.

36. (Previously Presented)    The layer 2 switch network system according to claim 22, wherein

the edge switch encapsulates, when receiving the MAC frame containing the real MAC address of the source and the temporary MAC address of the destination, the MAC frame with encapsulation information including the temporary MAC address of the source and the temporary MAC address of the destination based on the swap data, and

the edge switch decapsulates, when receiving encapsulated MAC frame, the encapsulated MAC frame, replaces the temporary MAC address of the destination set in the MAC frame with the real MAC address of the destination, and replaces the real MAC address of the source with the temporary MAC address of the source set as the encapsulation information.

37. (Currently Amended)    A terminal device in a layer 2 switch network that includes a plurality of layer 2 switches including an edge switch located on an edge of the layer 2 switch network as a wireless access point, the terminal device comprising:

an interface;

a storage unit that stores therein a real MAC address and a temporary MAC address for identifying the interface;

a replacing unit that performs replacement between the real MAC address and the temporary MAC address; and

a communicating unit that communicates with the layer 2 switch networks using the temporary MAC address, wherein

the edge switch snoops a neighbor solicitation IP packet, and replaces the real MAC address of the̶ a source set in the̶ a MAC frame including the neighbor solicitation IP packet and the real MAC address of the source set in the neighbor solicitation IP packet with corresponding temporary MAC addresses, respectively, when the terminal transmits the neighbor solicitation IP packet, and

the edge switch snoops a neighbor advertisement IP packet, and replaces the real MAC address of the̶ a source set in the̶ a MAC frame including the neighbor advertisement IP packet and a target real MAC address set in the neighbor advertisement IP packet with corresponding temporary MAC addresses, respectively, when receiving the neighbor advertisement IP packet from the terminal.

38. (Previously Presented)    The terminal device according to claim 37, wherein

the terminal device is a mobile terminal including a plurality of wireless interfaces having a common IP address, and

the wireless interfaces are allocated a common temporary MAC address.

39. (Previously Presented)    The terminal device according to claim 37, further comprising:

an updating unit that regularly updates any one of the real MAC address and the temporary MAC address or both to obtain updated MAC address; and

a notifying unit that notifies the edge switch of the updated MAC address.

40. (Previously Presented)    The terminal device according to claim 39, wherein, for a predetermined time period after the updating unit updates a first MAC address with a second MAC address, the terminal device captures a MAC frame addressed to the first MAC address and a MAC frame addressed to the second MAC address as a MAC frame sent thereto.

41. (Previously Presented)    A layer 2 switch network system that includes the terminal device according to claim 37, wherein the edge switch regularly instructs the terminal device to change the temporary MAC address.

42. (Previously Presented)    A layer 2 switch network system that includes the terminal device according to claim 39, wherein

the edge switch stores therein correspondence between an old temporary MAC address and a new temporary MAC address for a predetermined time period after updating the temporary MAC address, and swaps, when receiving a MAC frame addressed to the old temporary MAC address during the predetermined time period, the old temporary MAC address with the new temporary MAC address before processing the MAC frame.